plantimpact

Precision Crop Nutrition

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CaT

CaT

Calcium delivery system

Why do plants need calcium?

- Cellular integrity and cell wall strength
- Cell division and new cell formations
- Cellular pressure control to prevent over expansion
- Stress relief & protection against stress induced oxidative toxins
- Helps prevent disease and physiological disorders which reduce yields

Imbalances in distribution of calcium within the plant are created and exaggerated by agronomic practice (fertilisation), climate, and stress!

Calcium Uptake

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Calcium delivery system

- Root available calcium- transpiration and root pressure
- Pi Calcium technology is taken to the leaf - enters cells via the **Calcium auxin transport pump**
- Metabolic Ca or calcium pectate
- Movement determined by plant processes such as growth, water loss, cell division and area of higher auxin content
- Calcium pectate used for cell strength and stress relief

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Combat of stress at cellular level

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Ammonia and
Ethylene
production

Pi

Cellular Collapse

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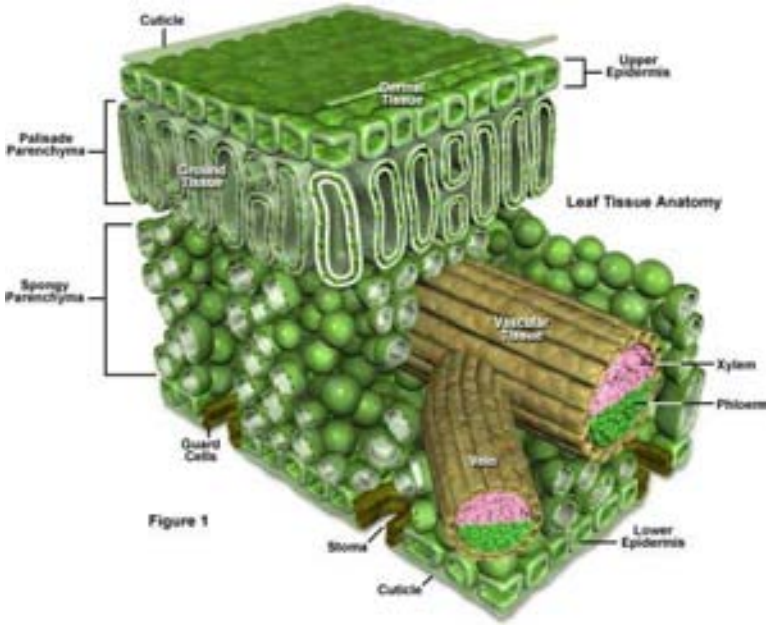
Calcium delivery system

Cellular collapse through lack of calcium

Foliar calcium Sprays?

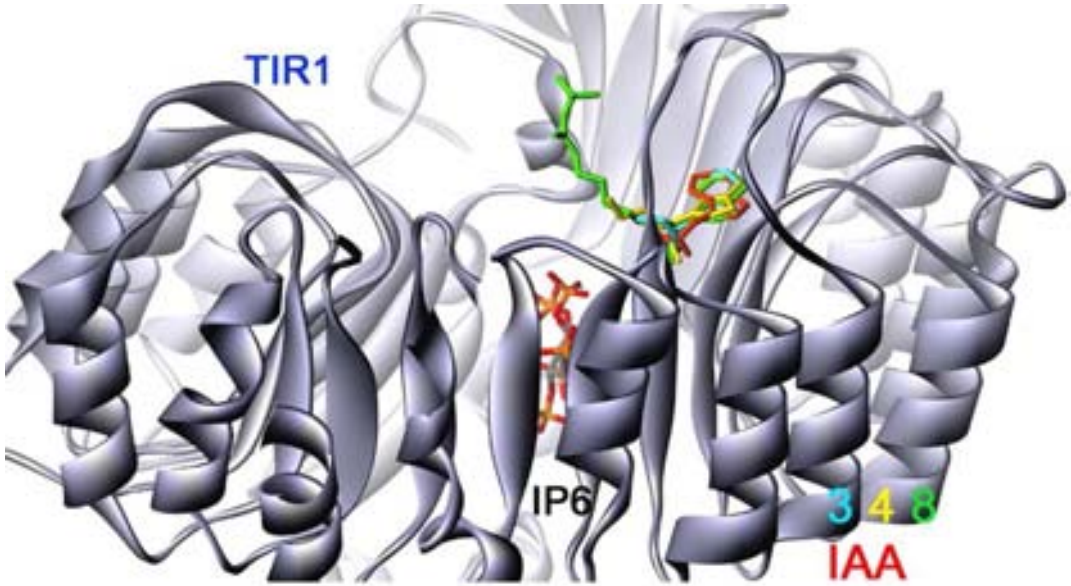


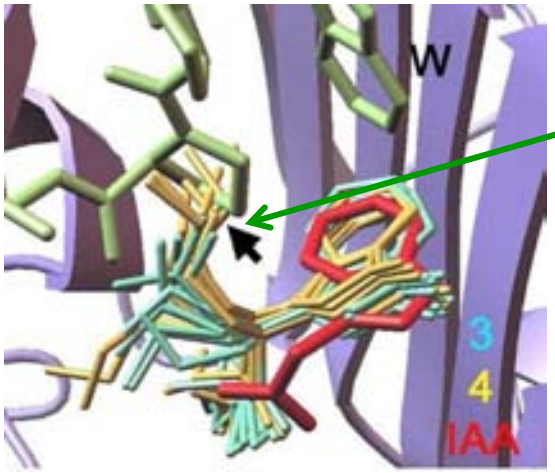
Traditional calcium sprays over the last 30 years have concentrated on:

- Greater levels of calcium in product
- Improving calcium penetration by the use of amino compounds, kelps additives or carbohydrate sources
- Reducing additional nutrients within the foliar spray to again maximise penetration of desired calcium to reduce unwanted growth responses

These measures whilst more effective than root applied calcium, lift levels in the local area to contact of application to hopefully create a redirection response for the root available calcium.

The Auxin Relationship





Calcium Absorption Receptor

Plant Impact scientists looked at the relationship between Calcium absorption and Auxin

During the mapping process found a receptor that stimulates the CTP

CaT Technology

CaT
Calcium delivery system

- Globally patented calcium absorption system
- Greater calcium penetration where most needed
- Synthesised plant extract chemically identical to part of auxin
- Operates the auxin calcium pump by mimicking the presence of auxin (non-hormonally) with none of its disadvantages
- Efficient Ca uptake at point of application - low inputs
- Moves calcium to poorer transporting tissues such as older leaves and fruit flesh
- CaT creates a balance of calcium throughout the plant

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CaT Effect

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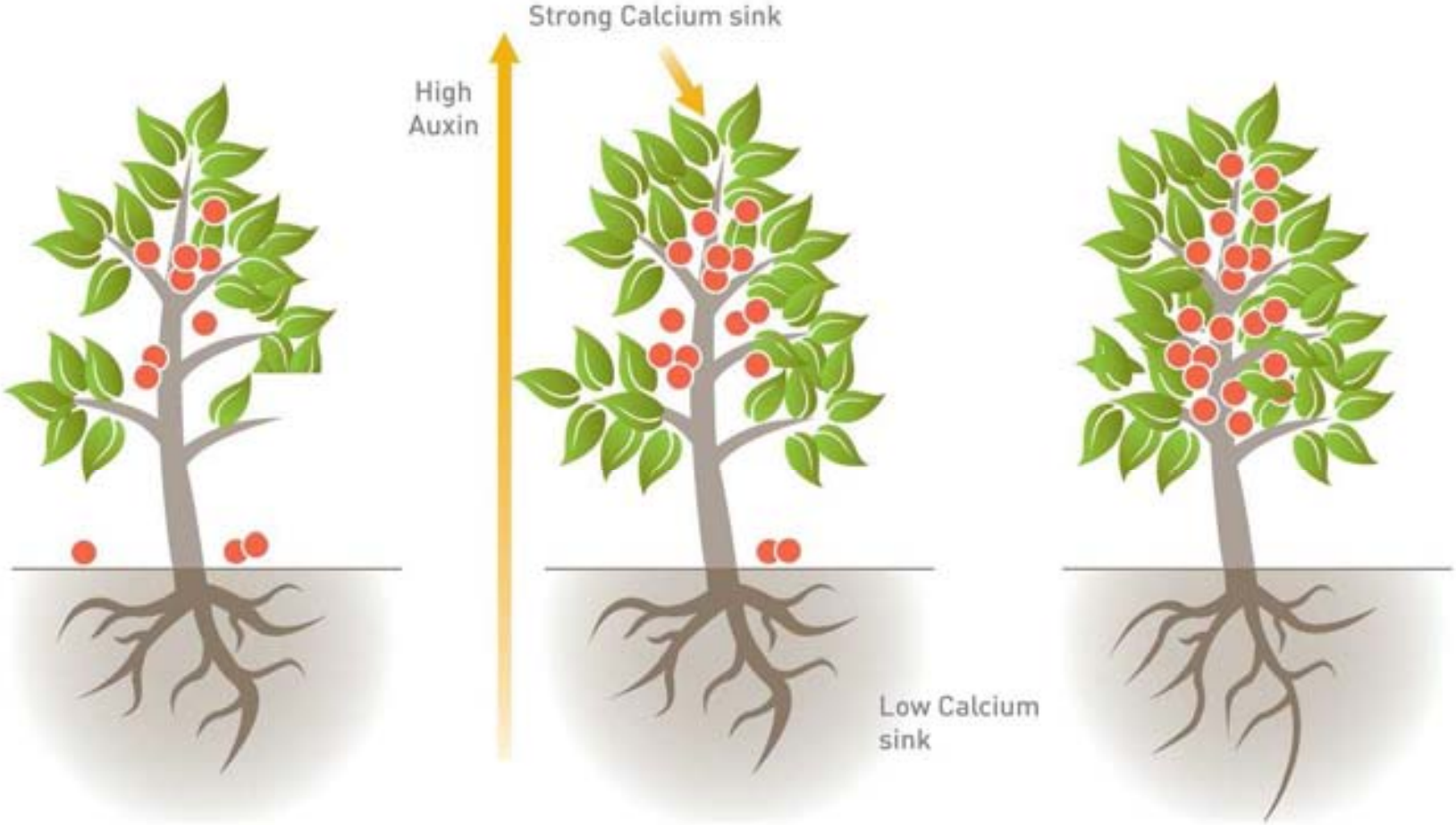
Calcium delivery system



Calcium deficient

Calcium in balance

Calcium in balance
with InCa

CaT Absorption

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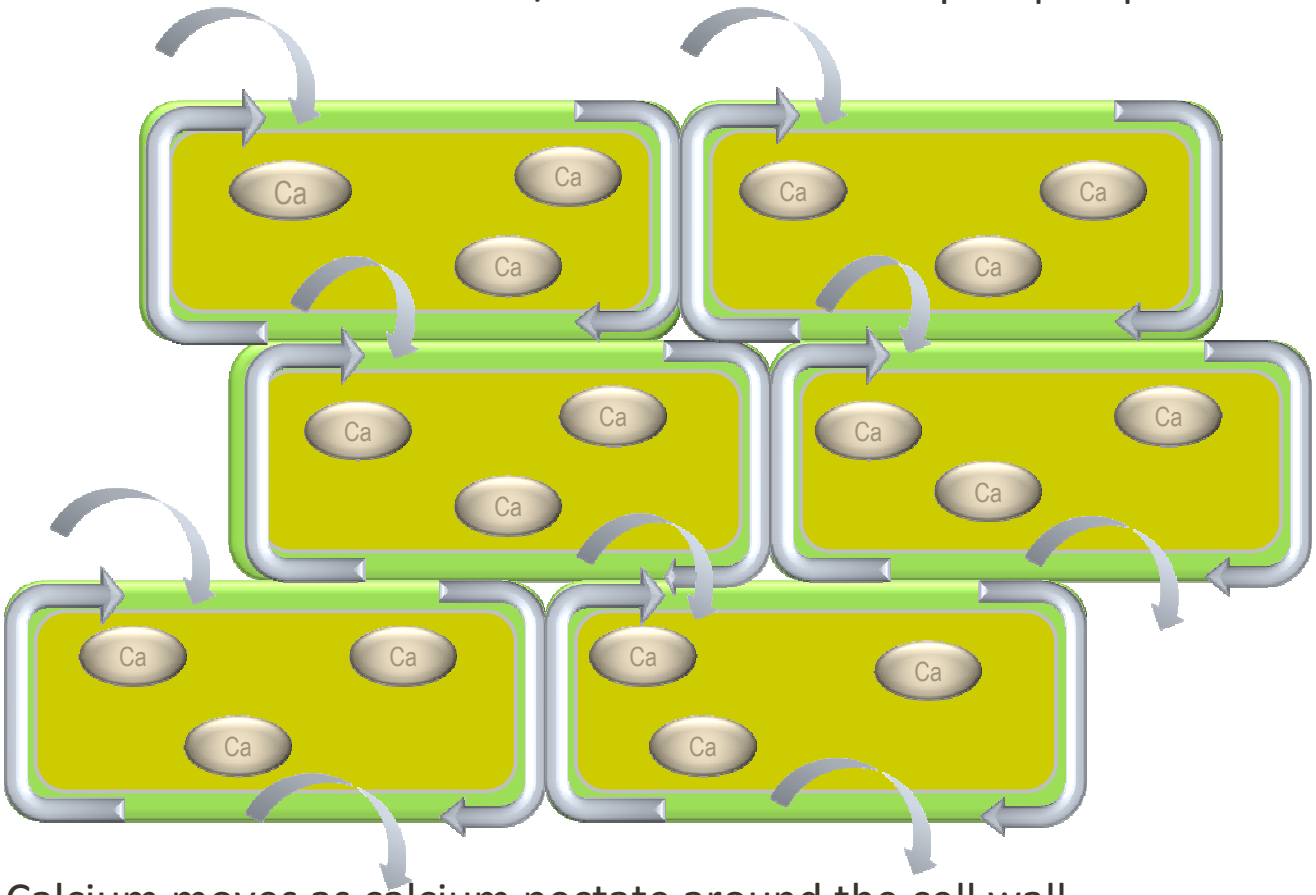
Calcium delivery system

Calcium/Auxin counter transport pump



Calcium moves as calcium pectate around the cell wall under pressure from the Ca counter transport pump

InCa

CaT
Calcium delivery system

A foliar 5% Calcium with 1% Zinc containing patented CaT technology

- Prevents calcium related physiological disorders in crops
- Improves plants ability to produce quality fruit in stress conditions such as heat and cold
- Prevents and cures disorders during periods of stress – hot, cold and even frost
- Improves shape, homogeneity, colour and brix in all fruit
- Sets more flowers and fruit - prevents cold thinning
- Increases dry matter in all crops
- Increases overall quality and shelf life

Calcium boost for healthier plants

CaT
Calcium delivery system

with CaT

InCa Trial Results

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Calcium delivery system

Crop	Rate	Increased productivity	Weight increase	Total yield increase	Quality Benefits
	3x 1litre	12-20%	4-6%	4-13.3 T/ha	Increased calcium level Reduced bitter pit Reduced storage diseases
	8x 1 litre	6-10%	10-14%	1-1.8 T/ha	Increased calcium level 50% increase shelf life Increased brix
	4x1litre	18-27%	3-5%	9.0 -15.6 T/ha	Increased calcium level increased dry matter and firmness, enhanced colour
	4x1.5litres	18-23%	4-6%	2.5-8.7 tonnes/ha	Increased calcium level Increased dry matter, firmness and brix.
	3 x 1 litre	14-29%	12-27%	7-10 T/Ha	Increased calcium level Increased storage, reduced browning and better skin finish

Pi

French Potato Trials 2010

InCa Agata potato trials, NE Paris, France

- 3 sprays InCa at 1.0 litres per ha
- From tuber initiation onwards at 14 day intervals

- Increased marketable tuber number by 23%
- Increased marketable tuber size by 27%
- Increased overall yield by 13.75 tonnes per Ha

- Marketable size was increase statistically increased

Ground Breaking Nutrtional Technologies

CaT

Calcium delivery system

- Aids calcium absorption
- Moves calcium from cell to cell
- Reduces abiotic stress
- Positive trial results
- Sales in 20 countries

Speedo

Accelerates productive growth

- Natural plant extract
- Accelerates nutrient uptake
- Earlier harvesting
- Market potential as an additive
- US Field trial development

PiNT

Nitrogen uptake system

- Effective absorption of Nitrogen
- Nitrogen - amines and ammonia.
- Reduced contamination – NVZ
- Evaluation trials in USA with USDA
- On sale in 15 countries

Alethea

Combats abiotic stress

- Resistance to abiotic stress
- Promotes strong healthy cells
- Helps neutralise plant toxins
- Enhances crop growth
- CST selling in Africa & Costa Rica

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